

#### Express Mail No. EV 473 970 744 US

#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Teruhiko Hagiwara

Art Unit:

2859

Serial No.:

09/803,819

Patent No.:

7,135,862 B2

Filed:

March 12, 2001

Issued:

November 14, 2006

For:

NMR LOGGING USING

Attorney Docket No:

7420-081-999

(020243-999080)

TIME-DOMAIN

**AVERAGING** 

PETITION TO CORRECT FILING DATE AND DATE-IN DISCREPANCY UNDER 37 C.F.R. §1.10(c)

Mail Stop Petition Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

cc: Certificate of Correction Branch

Sir:

or Corection

In accordance with 37 C.F.R. §1.10(c), Patentee hereby requests a correction of an error in the filing date accorded to the above-identified application, discovered after the patent had issued.

The Patent Office erred in according this application a March 13, 2001 filing date, because the application was submitted via the U.S. Postal Service on March 12, 2001, bearing a proper Express Mail label. The error was perpetuated throughout prosecution, and the incorrect March 13, 2001 filing date appeared as item (22) on the first page of the above-identified patent.

It is believed that the Patent Office can correct the error by granting this petition to establish March 12, 2001 as the correct filing date for the above-identified patent application, and issuing the attached certificate of correction.

The facts are as follows:

APR 2 7 2007

Patent application Serial No. 09/803,819 ("the '819 application") was filed on March 12, 2001, and matured into the above-identified U.S. Patent No. 7,135,862.

Pursuant to 37 C.F.R. §1.10, the '819 application was filed with an Express Mail label and deposited with the United States Postal Service "Express Mail Post Office to Addressee" on March 12, 2001. Patentee encloses herewith the following documents that evidence that the '819 application was properly filed under 37 C.F.R. § 1.10 on March 12, 2001:

(Exhibit A) copy of a United States Postal Service Express Mail label bearing March 12, 2001 as the "Date In" and the Express Mail number EL 501 637 971 US, which is also date-stamped March 12, 2001 by the Grand Central Station Post Office;

(Exhibit B) copy of a return post card for the '819 application which bears the filing particulars of the '819 application, including Express Mail number EL 501 637 971 US, and which indicates March 12, 2001 as the mailing date, but which is erroneously stamped by the United States Patent and Trademark Office with the date March 13, 2001;

(Exhibit C) copy of the Utility Patent Application Transmittal bearing Attorney Docket No. 7420-0081-999, which was filed with the '819 application and bears the same Express Mail Number EL 501 637 971 US, indicating a deposit date of March 12, 2001;

(Exhibit D) copy of the Pennie & Edmonds Docketing Department Log, executed and dated by Phil Mannino on March 12, 2001 for a package that was addressed to the Assistant Commissioner for Patents, bearing Express Mail No. EL 501 637 971 US. Page 2 of the Log shows that the application bearing docket No. 7420-081 was among the contents of the package mailed on March 12, 2001; and

(Exhibit E) copy of the front page of issued U.S. Patent No. 7,135,862 B2, bearing an incorrect filing date of March 13, 2001 at item (22).

The Express Mail Number on Exhibits B and C as described above was placed on the respective document prior to the original mailing by Express Mail. Attached Exhibits A through E are true copies of the original Express Mail mailing label, return postcard receipt, originally mailed correspondence, docketing log, and the front page of the issued patent.

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Date:

April 23, 2007

Respectfully submitted,

38,051

Ognjan V. Shentov

(Reg. No.)

JONES DAY

222 East 41st Street

New York, New York 10017

(212) 326-3939

# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO.

7,135,862 B2

**DATED** 

November 14, 2006

INVENTOR(S)

Teruhiko Hagiwara

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

At item "(22) Filed:" on the face of the patent, replace --Mar. 13, 2001-- with --Mar. 12, 2001--.

MR 2 7 2001

MAILING ADDRESS OF SENDER: JONES DAY 222 East 41st Street New York, New York 10017 (212) 326-3939 PATENT NO.

7,135,862 B2

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Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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## UTILITY PATENT APPLICATION TRANSMITTAL

**Total Pages** Attorney Docket No. 7420-081-999 First Named Inventor or Application Identifier Teruhiko Hagiwara

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		-Reference to Microfiche Appendix -Background of the Invention			C.	□ State	ment verifying identi	ty of above copies
		-Brief Summary of the Invention		:		ACCON	IDANYING APP	LICATION PARTS
		-Brief Description of the Drawings (if filed)						
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#### EXPRESS MAIL CERTIFICATION

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Date of Deposit MARCH 12, 2001 I hereby certify that the below-listed papers or fees were inserted into a package that was addressed to the Assistant Commissioner For Patents, Washington, D.C. 20231 and was deposited by me with the United States Postal Service "Express Mail Post Office Addressee" service under 37 C.F.R. 1.10 on the date indicated above.

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US007135862B2

# (12) United States Patent

#### Hagiwara

(10) Patent No.:

US 7,135,862 B2

(45) Date of Patent:

Nov. 14, 2006

(54)	NMR LOGGING USING TIME-DOMAIN
	AVERAGING

(75)	Inventor:	Teruhiko	Hagiwara,	Houston,	TX	(US)
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(73) Assignee: Halliburton Energy Services, Inc,

Houston, TX (US)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 23 days.

(21) Appl. No.: 09/803,819

(22) Filed: Mar. 13, 2001

#### (65) Prior Publication Data

US 2002/0163334 A1 Nov. 7, 2002

(51) Int. Cl. G01V 3/00

(2006.01)

324/303, 307, 309, 314; 702/79, 179
See application file for complete search history.

#### (56) References Cited

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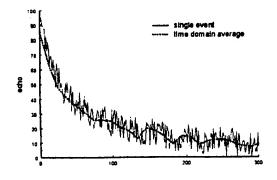
#### (Continued)

Primary Examiner—Diego Gutierrez Assistant Examiner—Dixomara Vargas (74) Attorney, Agent, or Firm—Jones Day

#### (57) ABSTRACT

Method for data acquisition and processing, which uses time-domain averaging to increase the signal to noise ratio (SNR) in single-event measurements. In a preferred embodiment, NMR echo-trains obtained using high-speed NMR logging are provided, the echo trains are time-domain averaged, preferably in real-time, over one or more time intervals to sharpen the spatial resolution of the logging tool and/or to increase the signal to noise ratio (SNR) of the data train.

#### 21 Claims, 8 Drawing Sheets



Time-domain averaged echo-train data.

04-25-07



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Teruhiko Hagiwara

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2859

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Date:

April 23, 2007

Respectfully submitted

38,051

Ognjan V. Shentov

(Reg. No.)

JONES DAY

222 East 41st Street

New York, New York 10017

(212) 326-3939

# UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO.

7,135,862 B2

**DATED** 

November 14, 2006

INVENTOR(S)

Teruhiko Hagiwara

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PATENT NO.

7,135,862 B2

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Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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# UTILITY PATENT APPLICATION TRANSMITTAL

Teruhiko Hagiwara TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b)) Express Mail Label No. EL 501 637 971 US **Assistant Commissioner for Patents** APPLICATION ELEMENTS ADDRESS TO: Box Patent Application Washington, DC 20231 See MPEP chapter 600 concerning utility patent application contents. ☑ Fee Transmittal Form 6. D Microfiche Computer Program (Appendix) Submit an original, and a duplicate for fee processing) 7. 

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D Paper Copy (identical to computer copy) -Statement Regarding Fed sponsored R&D -Reference to Microfiche Appendix c. 

Statement verifying identity of above copies -Background of the Invention Brief Summary of the Invention ACCOMPANYING APPLICATION PARTS -Brief Description of the Drawings (if filed) 8. 8 Assignment Papers (cover sheet & document(s)) -Detailed Description of the Invention (including drawings, if filed) -Claim(s) 9. 

37 CFR 3.73(b) Statement 

Power of Attorney (when there is an assignee) Abstract of the Disclosure 10. 

English Translation Document (if applicable) [Total Sheets 8] Drawing(s) (35 USC 113) Information Disclosure Copies of IDS [Total Sheets 2] Oath or Declaration Citations Statement (IDS)/PTO-1449 a. Mewly executed (original or copy) 12. 

Preliminary Amendment Copy from a prior application (37 CFR 1.63(d)) 13. Return Receipt Postcard (MPEP 503) (Should be specifically itemized) (for continuation/divisional with Box 17 completed) [Note Box 5 below] 14. 

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Statement filed in prior application, Statement(s) Status still proper and desired i. DELETION OF INVENTORS(S) 15. 

Certified Copy of Priority Document(s) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33 (b). (if foreign priority is claimed) 16. 

■ Other: Executed Power of Attorney by Assignee and Incorporation By Reference (useable if Box 4b is checked) 5. Exclusion of inventor(s) Under 37 C.F.R. 3.71 The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information: □ Continuation-in-part (CIP) of prior application No: filed □ Divisional Continuation 18. CORRESPONDENCE ADDRESS 20583 Vinsert Customer or Correspondence address below ☑ Customer Number or Bar Code Label No. or Attach bar code label here) NAME **ADDRESS** ZIP CODE CITY STATE FAX TELEPHONE COUNTRY

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US007135862B2

# (12) United States Patent

#### Hagiwara

(10) Patent No.:

US 7,135,862 B2

(45) Date of Patent:

Nov. 14, 2006

(54)	NMR LOGGING USING TIME-DOMAIN
	AVERAGING

- (75) Inventor: Teruhiko Hagiwara, Houston, TX (US)
- (73) Assignee: Halliburton Energy Services, Inc.

Houston, TX (US)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 23 days.

- (21) Appl. No.: 09/803,819
- (22) Filed: Mar. 13, 2001

### (65) Prior Publication Data

US 2002/0163334 A1 Nov. 7, 2002

(51)	Int. Cl.			
	G01V 3/00			

(2006.01)

324/303, 307, 309, 314; 702/79, 179 See application file for complete search history.

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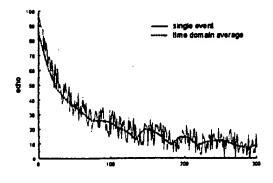
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Primary Examiner—Diego Gutierrez Assistant Examiner—Dixomara Vargas (74) Attorney, Agent, or Firm—Jones Day

#### (57) ABSTRACT

Method for data acquisition and processing, which uses time-domain averaging to increase the signal to noise ratio (SNR) in single-event measurements. In a preferred embodiment, NMR echo-trains obtained using high-speed NMR logging are provided, the echo trains are time-domain averaged, preferably in real-time, over one or more time intervals to sharpen the spatial resolution of the logging tool and/or to increase the signal to noise ratio (SNR) of the data train.

#### 21 Claims, 8 Drawing Sheets



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